Observations of Occultations of Stars by the Moon and of Phenomena of Jupiter's Satellites, made at the Royal Observatory, Greenwich, in the year 1892.

(*Communicated by the Astronomer Royal*).

Occultations of Stars by the Moon.

Day.	Phenomena.	Telescope.	Power.	Moon's limb.	Mean Solar Time of Observation. h m s	Observer.
1892 Feb. 1 (a)	Disapp. Piazzi XXIII. 190	E. Equat.	150	Dark	5 57 57·19	L.
1	,, Piazzi XXIII. 190	Altaz.	100	,,	5 57 57·36	H.
1 (b)	Reapp. Piazzi XXIII. 190	E. Equat.	150	,,	6 54 0·19	L.
7	Disapp. 118 Tauri (S*)	Altaz.	100	,,	12 45 27·84	H. T.
7	,, 118 Tauri (S*)	E. Equat.	150	,,	12 45 26·90	L.
7	,, 118 Tauri (N*)	Altaz.	100	,,	12 45 29·94	H. T.
7	,, 118 Tauri (N*)	E. Equat.	150	,,	12 45 28·99	L.
Mar. 8	,, ω^2 Cancri	,,	150	,,	8 14 46·44	H.
Apr. 2	,, 139 Tauri	Altaz.	100	,,	12 36 22·65	L.
2	,, 139 Tauri	E. Equat.	55	,,	12 36 22·97	A. C.
7 (c)	,, 42 Leonis	,,	55	,,	7 50 15·72	C. D.
May 11	,, BD −19° No. 4091	,,	55	,,	10 16 31·50	L.
11	,, BD −19° No. 4091	Altaz.	100	,,	10 16 32·02	B.
11	,, BD −19° No. 4093	Photo. Equat.	225	,,	10 20 26·16	C.
11 (d)	Reapp. BD −18° No. 4047	E. Equat.	55	,,	10 31 45·76	L.
11 (e)	Disapp. BD −19° No. 4095	Photo. Equat.	225	,,	10 34 56·27	C.
11	,, BD −19° No. 4095	E. Equat.	55	,,	10 34 57·73	L.
11	,, BD −19° No. 4095	Altaz.	100	,,	10 35 (4·01)	B.
11 (f)	,, BD −19° No. 4096	Photo. Equat.	225	,,	10 42 34·01	C.

Day.	Phenomena.	Telescope.	Power.	Moon's limb.	Mean Solar Time of Observation.			Observer.
					h	m	s	
1892 May 11 (g)	Reapp. B D −19° No. 4087	Photo. Equat.	225	Dark	10	57	37·53	C.
11	Disapp. O A (S.) 14520	"	225	"	11	9	37·56	C.
11	" O A (S.) 14525-6 (1st *)	E. Equat.	55	"	11	12	5·57	L.
11	" O A (S.) 14525-6 (1st *)	Altaz.	100	"	11	12	(8·00)	B.
11	" O A (S.) 14525-6 (2nd *)	Photo. Equat.	225	"	11	12	13·14	C.
11	Disapp. O A (S.) 14525-6 (2nd *)	E. Equat.	55	"	11	12	13·35	L.
11	Reapp. B D −19° No. 4091	E. Equat.	55	"	12	33	56·77	L.
July 3	Disapp. Uranus 1 L	Altaz.	100	"	9	8	4·82	H. T.
3	" Uranus 1 L	Photo. Equat.	225	"	9	8	2·99	C.
3	" Uranus 2 L	Altaz.	100	"	9	8	10·01	H. T.
3	" Uranus 2 L	Photo. Equat.	225	"	9	8	11·46	C.
Aug. 11 (h)	Reapp. 14 Ceti	"	120	"	12	39	37·63	C. D.
Sept. 12	" κ Tauri	E. Equat.	150	"	12	58	49·87	C. M.
15	" ω² Cancri	Photo. Equat.	120	"	13	42	51·01	C. D.
Oct. 3	Disapp. τ² Aquarii	Altaz.	100	"	6	32	1·54	A. C.
Nov. 30	" Piazzi I. 123 (1st *)	Photo. Equat.	225	"	8	8	21·63	C. D.
30	" Piazzi I. 123 (2nd *)	"	225	"	8	8	22·13	C. D.
30	" Lalande 2945	E. Equat.	150	"	8	26	26·86	A. C.
Dec. 25	" B.A.C. 8214	"	150	"	6	4	9·68	T. H.

Notes.

(a) A very good observation. (b) Star faint, slight cloud; possibly half a second late; not a good observation.
(c) Observation made very hurriedly. (d) Observation very rough. (e) Considered a good observation.
(f) Star very faint. (g) Probably a little late; star a little way from limb. (h) Reappearance bright and instantaneous.

Phenomena of Jupiter's Satellites.

Day.	Satellite.	Phenomenon.	Telescope.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Observer.
1892 Jan. 7	II.	Tr. Egr. First seen	E. Equat.	150	5 21 59	5 20	L.
7	II.	Last contact	"	"	5 27 38		"
June 27	II.	Ecl. D. Last seen	"	55	14 13 16		B.
27 (a)	II.	Ecl. D. Last seen	Photo. Equat.	225	14 13 19	14 12 51	C.D.
30	III.	Tr. Egr. First seen	E. Equat.	150	13 21 5	14 12 51	A.C.
30	III.	Bisection	"	"	13 22 32		"
30	III.	Last contact	"	"	13 25 14	13 28	"
July 22	II.	Ecl. R. First seen	"	"	13 51 2		L.
22	II.	Bisection	"	"	13 52 32	13 48 55	"
22	II.	Full brightness	"	"	13 53 36		"
22	II.	Occ. D. First contact	"	"	14 5 5		"
22	II.	Last seen	"	"	14 7 44	14 6	"
Aug. 10	I.	Occ. R. First seen	"	"	13 21 33	13 21	B.
11 (b)	I.	Tr. Egr. First seen	Photo. Equat.	225	10 37 34		C.D.
11	I.	Bisection	"	"	10 39 6	10 40	"
11	I.	Last contact	"	"	10 40 14		"
12 (c)	III.	Tr. Egr. Last contact	"	"	12 50 46	12 53	"
25	II.	" First seen	E. Equat.	150	9 48 12		L.
25	II.	Bisection	"	"	9 51 26	9 52	"
25	II.	Last contact	"	"	9 55 11		"

Day.	Satellite.	Phenomenon.		Telescope	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Observer.
1892 Aug. 30 (d)	II.	Ecl. D.	Began to fade	Photo. Equat.	225	13 29 52	13 32 12	C.D.
30	II.		Last seen	,,	,,	13 32 24		,,
Sept. 6	III.	Occ. D.	First contact	E. Equat.	150	11 14 37	11 23	L.
6	III.		Last seen	,,	,,	11 19 51		,,
6	III.	Occ. R.	First seen	,,	,,	12 54 22	13 7	,,
6	III.		Last contact	,,	,,	13 7 35		,,
13	III.	Ecl. D.	Last seen	,,	,,	11 39 1	11 38 13	R.C.
17 (e)	II.	Ecl. D.	Last seen	,,	,,	7 58 33	7 59 53	A.C.
17	II.	Ecl. D.	Last seen	Photo. Equat.	225	7 58 34	7 59 53	A.E.
17	II.	Occ. R.	First seen	E. Equat.	150	11 40 4	11 41	A.C.
17	II.		Last contact	,,	,,	11 41 59		,,
17 (f)	II.	Occ. R.	First seen	Photo. Equat.	225	11 39 48	11 41	A.E.
17	I.	Tr. Ing.	First contact	E. Equat.	150	11 47 44	11 49	A.C.
17	I.		Bisection	,,	,,	11 49 3		,,
17	I.		Last seen	,,	,,	11 50 44		,,
24 (g)	III.	Tr. Ing.	First contact	,,	,,	8 0 23	7 58	,,
24	III.		Last seen	,,	,,	8 7 50		,,
24	III.	Tr. Egr.	First seen	,,	,,	9 38 36		,,
24	III.		Bisection	,,	,,	9 41 26	9 42	,,
24	III.		Last contact	,,	,,	9 43 2		,,
24 (h)	II.	Ecl. D.	Began to fade	,,	,,	10 32 46	10 35 1	,,
24	II.		Last seen	,,	,,	10 34 45		,,

Day.	Satellite.	Phenomenon.	Telescope.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Observer.
1892 Sept. 24	I.	Tr. Ing. First contact	E. Equat.	150	13 31 0		A. C.
24	I.	Bisection	,,	,,	13 33 34	13 33	,,
24	I.	Last seen	,,	,,	13 35 2		,,
24	II.	Occ. R. First seen	,,	,,	13 53 41		,,
24	II.	Bisection	,,	,,	13 54 48	13 56	,,
24	II.	Last contact	,,	,,	13 57 17		,,
Oct. 1	III.	Tr. Ing. First contact	,,	,,	11 11 18		L.
1	III.	Bisection	,,	,,	11 16 27	11 13	,,
1	III.	Last seen	,,	,,	11 24 46		,,
1	III.	Tr. Egr. Bisection	,,	,,	13 0 10		,,
1	III.	Last contact	,,	,,	13 6 19	13 0	,,
1	II.	Ecl. D. Last seen	,,	,,	13 9 45	13 9 13	,,
3	I.	Tr. Ing. Bisection	,,	55	9 41 22		A. C.
3	I.	Last seen	,,	,,	9 42 55	9 42	,,
3	II.	Tr. Egr. First seen	,,	,,	10 34 46		,,
3	II.	Bisection	,,	,,	10 37 22	10 36	,,
3	II.	Last contact	,,	,,	10 40 4		,,
3	I.	Tr. Egr. First seen	,,	,,	11 51 19		,,
3	I.	Bisection	,,	,,	11 52 59	11 54	,,
3	I.	Last contact	,,	,,	11 54 21		,,

Day.	Satellite.	Phenomenon.		Telescope.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Observer.
1892 Oct. 9 (*i*)	I.	Ecl. D.	Bisection	E. Equat.	150	14 7 32	14 8 15	T. H.
9	I.		Last seen	"	"	14 8 27		"
18	I.	Occ. D.	First contact	Photo Equat.	225	10 19 12		C. D.
18	I.		Bisection	"	"	10 21 27	10 21	"
18	I.		Last seen	"	"	10 22 57		"
18	I.	Ecl. R.	First seen	"	"	12 41 54	12 41 39	"
18	I.		Full brightness	"	"	12 43 34		"
25	I.	Occ. D.	Last seen	E. Equat.	150	12 5 3	12 5	B.
26	I.	Tr. Ing.	Bisection	"	220	9 19 38	9 18	A. C.
26	I.		Last seen	"	"	9 20 59		"
26	II.	Occ. D.	First contact	"	"	9 23 56		"
26	II.		Bisection	"	"	9 26 14	9 28	"
26	II.		Last seen	"	"	9 29 23		"
26	III.	Occ. D.	First contact	"	"	10 17 47		"
26	III.		Bisection	"	"	10 20 59	10 23	"
26	III.		Last seen	"	"	10 28 44		"
Nov. 1	I.	Occ. D.	First contact	"	150	13 47 19		"
1	I.		Bisection	"	"	13 49 6	13 50	"
1	I.		Last seen	"	"	13 50 27		"
18	I.	Tr. Ing.	First contact	"	"	8 59 30		L.
18	I.		Bisection	"	"	9 1 55	9 0	"
18	I.		Last seen	"	"	9 4 30		"

Day.	Satellite.	Phenomenon.		Telescope.	Power.	Mean Solar Time of Observation. (h m s)	Mean Solar Time of N.A. (h m s)	Observer.
1892 Nov. 18 (j)	I.	Tr. Egr.	First seen	E. Equat.	150	11 8 59		L.
18	I.		Bisection	"	"	11 13 4	11 13	"
18	I.		Last contact	"	"	11 16 28		"
27	I.	Tr. Egr.	First seen	"	220	7 23 57		L.
27	I.		Bisection	"	"	7 26 47	7 28	"
27	I.		Last contact	"	"	7 29 36		"
27	II.	Occ. D.	First contact	"	"	7 44 21		"
27	II.		Bisection	"	"	7 46 49	7 47	"
27	II.		Last seen	"	"	7 48 37		"
27 (k)	II.	Occ. D.	First contact	Altaz.	100	7 47 45		T. H.
27	II.		Bisection	"	"	7 49 2	7 47	"
27	II.		Last seen	"	"	7 50 27		"
Dec. 3	I.	Ecl. R.	First seen	E. Equat.	150	13 13 17	13 12 54	"
6	II.	Tr. Egr.	Last contact	"	"	7 42 39	7 41	A. C.
12	I.	Occ. D.	First contact	Photo. Equat.	225	6 10 47		C. D.
12	I.		Bisection	"	"	6 12 2	6 12	"
12	I.		Last seen	"	"	6 13 37		"
13 (l)	II.	Tr. Ing.	First contact	E. Equat.	150	7 31 30		C. M.
13	II.		Bisection	"	"	7 33 29	7 37	"
13	II.		Last seen	"	"	7 36 12		"
22	II.	Occ. R.	First seen	"	220	6 54 16	6 56	A. C.
22	II.		Last contact	"	"	6 56 5		"

Day.	Satellite.	Phenomenon.	Telescope.	Power.	Mean Solar Time of Observation.	Mean Solar Time of N.A.	Observer.
					h m s	h m s	
1892 Dec. 22 (*m*)	II.	Ecl. D. Began to fade	E. Equat.	220	6 58 12	7 4 13	A. C.
22	II.	Last seen	,,	,,	7 2 23		,,
26 (*n*)	III.	Tr. Egr. First seen	,,	150	7 3 34	7 9	L.
26 (*o*)	III.	Last contact	,,	,,	7 11 23		,,
28 (*p*)	I.	Ecl. R. First seen	,,	220	7 59 22		,,
28	I.	Bisection	,,	,,	8 1 1	7 58 24	,,
28	I.	Full brightness	,,	,,	8 2 11		,,
29	II.	Occ. R. First seen	,,	150	9 28 43	9 29	T. H.
29	II.	Last contact	,,	,,	9 30 47		,,
29	II.	Ecl. D. Last seen	,,	,,	9 39 31	9 41 11	,,

Notes.

(*a*) A good observation.   Definition very good.
(*b*) Fairly good observation, but *Jupiter* was low down at the time.
(*c*) The satellite was first noticed at 12ʰ 45ᵐ.   The first phase was lost owing to its reappearing so much earlier than was expected.
(*d*) A very good observation.
(*e*) Not a good observation ; *Jupiter* very low.   (*f*) Satellite hung on the limb some time.
(*g*) The time noted is probably a little late.   (*h*) Considered a good observation.   (*i*) Not a good observation.
(*j*) Observation very rough.   Satellite scarcely visible ; thick fog.   (*k*) Definition very bad ; foggy.
(*l*) Satellite very faint ; foggy.   (*m*) Considered a fairly good observation.   (*n*) A fairly good observation.
(*o*) Considered a very good observation.   (*p*) Observations not of much value ; foggy.

The initials H. T., C., L., H., A. C., B., T. H., C. M., C. D., R. C., and A. E. are those of Mr. Turner, Mr. Criswick, Mr. Lewis, Mr. Hollis, Mr. Crommelin, Mr. Bryant, Mr. Hudson, Mr. Martin, Mr. Davidson, Mr. Cheeseman, and Miss Everett respectively.

The aperture of the object glass of the East Equatoreal is 6·7 inches, and of the Altazimuth 3¾ inches.   The abbreviation "Photo. Equat." denotes the guiding telescope of the Photographic Equatoreal, aperture 10 inches.

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Observations of the Phenomena of Jupiter's Satellites at Bermerside Observatory, Halifax, in the year 1892. By Joseph Gledhill.

Day of Obs. 1892.	Satel-lite.	Pheno-menon.	Phase.	G.M.T. of Observation. h m s	N. Almanac Time. h m s	Remarks.
Jan. 1	I.	Tr. I.	Ext. contact.	5 42 0	5 42	Poor definition.
			Int. contact.	5 44 30		
	I.	Sh. I.	Int. contact.	6 56 30	6 54	
Sept. 8	II.	Sh. I.	Int. contact.	10 33	10 27	Good definition.
	II.	Tr. I.	Ext. contact.	12 10 30	12 10	
			Bisection.	12 13		
			Int. contact.	12 15		
10	I.	Sh. I.	Int. contact.	9 18	9 16	Bad definition.
	II.	Oc. R.	Bisection.	9 25	9 25	
			Ext. contact.	9 27		
	I.	Tr. I.	Ext. contact.	10 6	10 4	
13	III.	Ec. D.	Fading?	11 34 30	11 38 13	Good definition.
			Fading.	11 36 30		
			Half gone.	11 38 30		
			Just gone.	11 40 47		
	III.	Ec. R.	First seen.	13 45 2	13 49 46	
			Half out.	13 48		
			Full brightness	13 53		
17	I.	Sh. I.	Int. contact.	11 11 30	11 10	Fair definition.
	II.	Oc. R.	Bisection.	11 40 30	11 41	
			Ext. contact.	11 41 30		
	I.	Tr. I.	Ext. contact.	11 48 30	11 49	
			Bisection.	11 50 30		
			Int. contact.	11 51 30		
24	III.	Tr. E.	Bisection.	9 35	9 42	Fair definition.
			Ext. contact.	9 43		
	II.	Ec. D.	Half gone.	10 33	10 35 1	
			Just gone.	10 35 15		
25	I.	Ec. D.	Fading?	10 15	10 18 11	
			Fading.	10 16		
			Half gone?	10 17		
			Just gone.	10 18 40		
26	I.	Tr. I.	Ext. contact.	7 58 30	7 59	
			Bisection.	8 0		
			Int. contact.	8 3		